

## 15. ALARMS AND TROUBLESHOOTING

### 15.1 Alarm summary table

When an alarm is activated a message identifying the alarm is displayed on the control module. In the case of potentially dangerous alarms, the control module automatically shuts the humidifier down. For some alarm events (see Table 15.a), the signalling of the alarm is accompanied by the activation of an alarm relay, as described in: Other auxiliary contacts.

If the cause of the alarm is no longer valid, the humidifier and alarm relay output can be reset automatically or manually, according to the type of problem, while the message displayed is deactivated manually by pressing the reset-PRG button.

If no longer active, the alarm status continues to be indicated until the reset-PRG button is pressed.

#### Still active alarms can not be reset.

In the type C control module the presence of an alarm is indicated by the lighting up of LED 9 and a combination of the LEDs 5 (Fig. 15.a); in the event of more than one alarm, these are indicated in sequence, at 2 second intervals.

In the type H or T control module, if not in programming phase, in the presence of an alarm LED 9 (see fig. 15.b) begins flashing, while the display 5 indicates the alphanumeric alarm code.

The message is displayed cyclically, for a duration of two seconds, alternating with the measurement normally displayed (if the measurement normally displayed corresponds to a disconnected probe, the measurement is not displayed; this will automatically return to the display if the probe is reconnected). In the event of more than one alarm, the display indicates all the corresponding codes in sequence, at two second intervals.

The alarm Ec cannot be reset.

In the event of the alarm CL (regular maintenance required), the alarm can be reset only by resetting the hour counter; see **Resetting the hour counter**.

The alarm E1 may appear in two distinct cases:

- Malfunction when reading from the parameter memory** (typically on start-up)  
The default parameters are temporarily recalled, without being saved in the parameter memory (the parameters can be accessed and the correct values restored).  
In any case the default parameter recall procedure is recommended; see **Recalling the default parameters**.
- Malfunction when writing to the parameter memory** (typically on pressing the PRG button)  
Any modifications made will be cancelled; the parameters can be accessed, the values modified and save operation repeated.

Table 15.a lists the alarm indications, the causes, the conditions and the possible solutions.

The remote terminal column indicates the alarm message that appears on the LCD display of the CAREL Humivisor remote control panel, if one is connected to the humidifier.

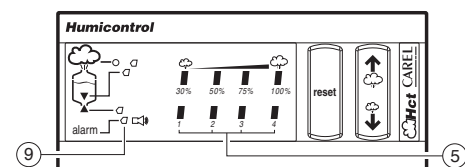


Fig. 15.a

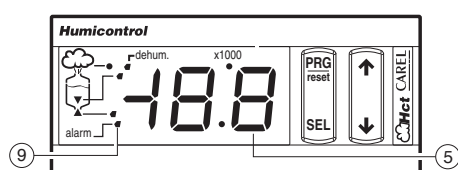


Fig. 15.b

code displayed		CAREL Humivisor remote terminal	cause	solution (once having tried the suggestion, if the problem persists, contact the CAREL service department)	action	reset	alarm relay
H and T controller	C controller						
Et		E202	<ul style="list-style-type: none"> <li>activation of safety thermostat</li> <li>Klixon activation</li> <li>the thp output is open</li> </ul>	<ul style="list-style-type: none"> <li>check the earth current of the heaters, and if replace necessary.</li> <li>manually reset the Klixon</li> <li>problem dependent mainly on operation without water;</li> <li>turn the machine off and, once it has cooled down, reactivate the thermostat on the cylinder cover after having cleaned the cylinder and the level control, checking the efficiency of the components;</li> <li>check that the electrical and water connections are in order and that the machine is supplied correctly;</li> <li>it may be necessary to replace the PTC sensors if installed</li> </ul>		not available	active if Et remain in order at least a minute.
EL		E204	contradiction of the float	<ul style="list-style-type: none"> <li>check the correct supply of water to the cylinder;</li> <li>turn the machine off and clean: the cylinder, the level control and the fill electrovalve</li> </ul>	see procedure "AR"	manual	only if EE appears during AR
EC	non previsto	E205	high conductivity of the supply water	<ul style="list-style-type: none"> <li>turn the machine off and clean the water conductivity measuring electrodes;</li> <li>if the problem persists, change the source of the supply water or install a suitable treatment system (demineralisation, even partial);</li> <li>the problem will not be resolved by softening the supply water</li> </ul>	total shutdown	auto available	active

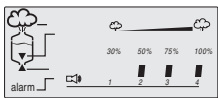
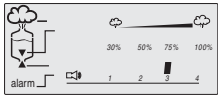
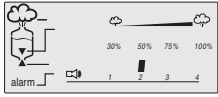

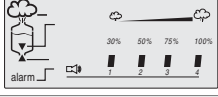
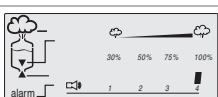
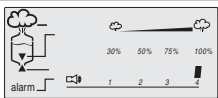
H and T controller	code displayed	CAREL Humivisor remote terminal	cause	solution (once having tried the suggestion, if the problem persists, contact the CAREL service department)	action	reset	alarm relay
EE		E211	autotest failed; probable problems in: supply water, level control or electrovalve	- ensure that the machine is supplied with water; - turn the machine off and clean the level control and the fill valve	see procedure "AR"	manual	active only on the second EP or after EE during AR
EP		E213	• electrical power not available; on machine start-up no steam is produced or the water is not pre-heated • float locked in high level position.	with the machine off and disconnected from mains power supply, check that there are no defective or malfunctioning electrical connections	see procedure "AR"	manual	active only on the second EP or after EE during AR
EF		E214	no water	- check that the supply pipe from the water supply to the humidifier and the internal pipe is not blocked or choked and that the pressure is sufficient (1-8 bar); - check the operation of the fill electrovalve; - check that the steam supply does not have to work against excessive back-pressure, preventing the flow of water into the cylinder due to gravity; - check that the steam supply pipe is not choked or that there are no pockets of condensation	humidifier disabled  after waiting 10 min the alarm is automatically reset and a new fill cycle is attempted	manual or automatic (if after waiting 10 min the water supply returns)	active
ER		E215	formation of foam in the cylinder during boiling	- the formation of foam is usually due to the presence of surfactants in the water (lubricants, solvents, detergents, water treatment or softening agents) or an excessive concentration of dissolved salts. Drain the water supply line; - clean the cylinder	signal only	manual	not active
Ec	not featured	E231	high water conductivity pre-alarm	- check the conductivity of the supply water; - if necessary, install a suitable water treatment system; - the problem will not be resolved by softening the supply water	humidifier disabled	auto available	not active
E-	not featured	E221	high ambient humidity (high temperature in T control)	check the operation of the probe and the limit set by parameter P2	signal only	auto available	active
E.	not featured	E222	low ambient humidity low temperature in T control)	check the operation of the probe and the limit set by parameter P3	signal only	auto available	active
E=	not featured	E224	high outlet humidity	check the operation of the outlet probe	signal only	auto available	active
EO		E201	internal memory error	contact the CAREL service department	humidifier disabled	reprogram CAREL	active
E1	not featured	E212	user parameter error	with the machine off check that there are no defective or malfunctioning electrical connections	humidifier disabled	reprogram parameters	active
E2	not featured	E230	hour counter error	reset the hour counter (see Resetting the hour counter)	hour counter saving disabled	manual hour counter reset	not active
E3	not featured	E220	room probe not connected	check the connection of the probe and the setting of parameter A0 for ON/OFF configuration (see Reading and programming the parameters)	humidifier disabled	auto available	active
E4	not featured	E223	outlet probe not connected (if featured)	check the connection of the probe or the setting of parameter A0 (see Reading and programming the parameters)	humidifier disabled	auto available	active
E5	not featured	E225	NTC probe for measuring the water temperature not connected (if featured)	- check the pre-heating operation and the setting of parameters b1, b2, b3 (see Reading and programming the parameters); - check the connections to the terminal block on the cylinder cover	pre heating disabled	auto available	active
EL	not featured	E232	regular maintenance signal	stop the machine and carry out a complete maintenance routine on the humidifier, resetting the hour counter (see Resetting the hour counter)	signal only	manual	not active
Ed		E216	no drain pre-alarm or filter blocked	- check the drain valve/pump; - check if the pipes or the manifold are blocked; - check if the level sensor is faulty or the pipes are blocked; - the filter inside the boiler may be clogged.	see procedure "AR"	manual	active on the second "Ed"
EU		E233	boiler full of water with no humidification demand pre-alarm	- check if the fill valve is leaking; - check if the high level sensor is dirty.	signal only	auto available	not active

Table 15.a

## 15.2 Autotest Retry procedure (Fault tolerance)

AUTOTEST RETRY ("AR")							
Step	Description	Drain status	Fill status	Contact status	Duration	Condition that can stop "AR"	
							Display
1	Stop production. Open contactor	Off	Off	Off	3 sec	No	
2	Drain by time	On	Off	Off	If at the end of a set time the float is below to the minimum reed, the procedure goes to step 3, otherwise it drains again and then goes to step 3	High level sensor active	EE
3	Wait for level to stabilise	Off	Off	Off	3 sec	High level sensor active	EE
4	Fill water	Off	On	Off	Ends when the float reaches the control reed	Contradiction of the levels High level sensor active The fill time exceeds a maximum limit	EE
5	Wait for level to stabilise	Off	Off	Off	10 sec	Contradiction of the levels High level sensor	EE
6	Drain	On	Off	Off	Ends when the float reaches the control reed	Contradiction of the levels High level sensor active The drain time exceeds a maximum limit	EE
7	Wait for level to stabilise	Off	Off	Off	1 sec	Contradiction of the levels High level sensor active	EE

Tab. 15.b

### NOTE:

- During the Autotest Retry procedure the display shows the code "AR" alternating with the alarm code that triggered the procedure.
- If the PRG button is pressed during the Autotest Retry procedure, the procedure is stopped and normal humidifier operation resumes.

## 15.3 Troubleshooting

Problem	Cause	Solution
The control does not turn on	<ol style="list-style-type: none"> <li>1. no electrical power supply;</li> <li>2. external switch in position 0 (open);</li> <li>3. control connectors poorly installed;</li> <li>4. fuses blown;</li> <li>5. transformer malfunction.</li> </ol>	<ol style="list-style-type: none"> <li>1. check the protection devices upstream of the humidifier and the mains power supply;</li> <li>2. close the switch: position I;</li> <li>3. check that the connector are properly installed on the terminal block;</li> <li>4. check the state of fuses F1/F2;</li> <li>5. check that the secondary of the transformer has an output of 24 Vac.</li> </ol>
The humidifier does not start	<ol style="list-style-type: none"> <li>1. remote ON/OFF contact open (relay/terminals 71 - 81);</li> <li>2. the external regulator/humidistat or probe has not been connected correctly;</li> <li>3. probe/humidistat malfunction;</li> <li>4. parameters not set correctly;</li> <li>5. safety thermostat activated;</li> <li>6. fan circuit breaker activated (H or T control);</li> </ol>	<ol style="list-style-type: none"> <li>1. close ON/OFF contacts (relay/terminals 71 - 81);</li> <li>2. check the external connection;</li> <li>3. check the external signal;</li> <li>4. reprogram the parameters correctly;</li> <li>5. reset the thermostat after having eliminated the cause of the problem;</li> <li>6. reset the circuit breaker after having eliminated the cause of the problem;</li> </ol>
The humidifier fills with water without producing steam	<ol style="list-style-type: none"> <li>1. steam outlet back-pressure too high;</li> <li>2. leaking flow regulator in the water fill electrovalve (with leaks in the water circuit);</li> <li>3. level control malfunction;</li> <li>4. cylinder inlet filter blocked;</li> <li>5. lime in the fill tank;</li> <li>6. drain electrovalve malfunction;</li> </ol>	<ol style="list-style-type: none"> <li>1. check that the steam outlet pipe is not bent or choked;</li> <li>2. replace the fill electrovalve;</li> <li>3. clean the level control or replace if necessary;</li> <li>4. clean the filter;</li> <li>5. clean the fill tank;</li> <li>6. check for the presence of 24Vac at the drain electrovalve; clean the drain electrovalve;</li> </ol>
Line circuit breaker is activated	<ol style="list-style-type: none"> <li>1. the line circuit breaker is rated too low;</li> <li>2. resistors short-circuited</li> </ol>	<ol style="list-style-type: none"> <li>1. check that the circuit breaker is rated for a current of at least 1.5 times the rated current of the humidifier;</li> <li>2. check, by measuring, the value of the resistors and replace them if necessary</li> </ol>
The humidifier wets the duct	<ol style="list-style-type: none"> <li>1. the distributor is not installed correctly;</li> <li>2. the system is rated too high;</li> <li>3. the humidifier is active when the duct fan is off;</li> </ol>	<ol style="list-style-type: none"> <li>1. check that the steam distributor has been installed correctly;</li> <li>2. diminish the steam production set on the control;</li> <li>3. check the connection of the device (flow switch or differential pressure switch) linked to the humidifier for ventilation in the duct (terminals 71 - 81)</li> </ol>
The humidifier wets the floor below	<ol style="list-style-type: none"> <li>1. the humidifier pipe is blocked;</li> <li>2. the water supply or overfill circuit has leaks;</li> <li>3. the condensate drain pipe does not drain the water back to the fill tank;</li> <li>4. the steam outlet pipe is not properly attached to the cylinder;</li> </ol>	<ol style="list-style-type: none"> <li>1. clean the pipe in the bottom tank;</li> <li>2. check the entire water circuit;</li> <li>3. check the correct positioning of the condensate drain pipe in the fill tank;</li> <li>4. check the fastening of the pipe clamp on the steam outlet pipe;</li> </ol>

Table 15.c

## 16. HUMIDIFIER TECHNICAL SPECIFICATIONS

	model							
	UR002	UR004	UR006	UR010	UR020	UR027	UR040	UR060
number of heating elements	1	1	3	3	6	6	6	9
steam								
connection (φ mm)( φ inch)	30/1.18				40/1.57	40/1.57		2x40/1.57
supply pressure limits (Pa)	0...1500				2000			
supply water								
connection	G3/4" M							
temperature limits (°C)(°F)	1T40/33.8T104							
pressure limits (MPa)	0.1 to 0.8 (1 to 8 bar)							
hardness limits (°fH)	≤ 40							
instant flow rate (l/min) (gpm)	0,6/0.13	0,6/0.13	1,2/0.26	1,2/0.26	4/0.88	4/0.88	4/0.88	10/2.2
drain water								
connection (φ mm)( φ inch)	40/1.57							
typical temperature (°C)(°F)	≤100 / 212							
instant flow rate (l/min)(gpm)	5/1.32				22,5/5.94			
environmental conditions								
ambient operating temperature (°C)	1T40/33.8T104							
ambient operating humidity (% rH)	10 to 60							
storage temperature (°C) (°fH)	-10T70/14T158							
storage humidity (% rH)	5 to 95							
index of protection	IP20							
control								
type	URC-URH-URS							
voltage / auxiliary frequency (V / Hz)	24 / 50/60							
maximum auxiliary power (VA)	30							
probe inputs (general characteristics)	selectable input signal: 0 to 1 Vdc, 0 to 10 Vdc, 2 to 10 Vdc, 0 to 20 mA, 4 to 20 mA							
	input impedance: 60 kΩ with signals: 0 to 1 Vdc, 0 to 10 Vdc, 2 to 10 Vdc							
	50 Ω with signals: 0 to 20 mA, 4 to 20 mA							
power to active probes (general characteristics)	24 Vdc (24 Vac rectified), Imax= 250 mA							
	12 Vdc 5%, Imax= 50 mA							
alarm relay and dehumidification outputs (general characteristics)	250 V 8 A (2 A)							
	type of micro-switching action 1C							
remote enabling input (general characteristics)	free contact; max. resistance max. 50 Ω; Vmax=24 Vdc; Imax=5 mA							
serial communication	two-lead RS485							

Table 16.a

## 17. SPARE PARTS

Exploded of the cylinder 6-10kg/h ( 13.2-22 lbs/h )

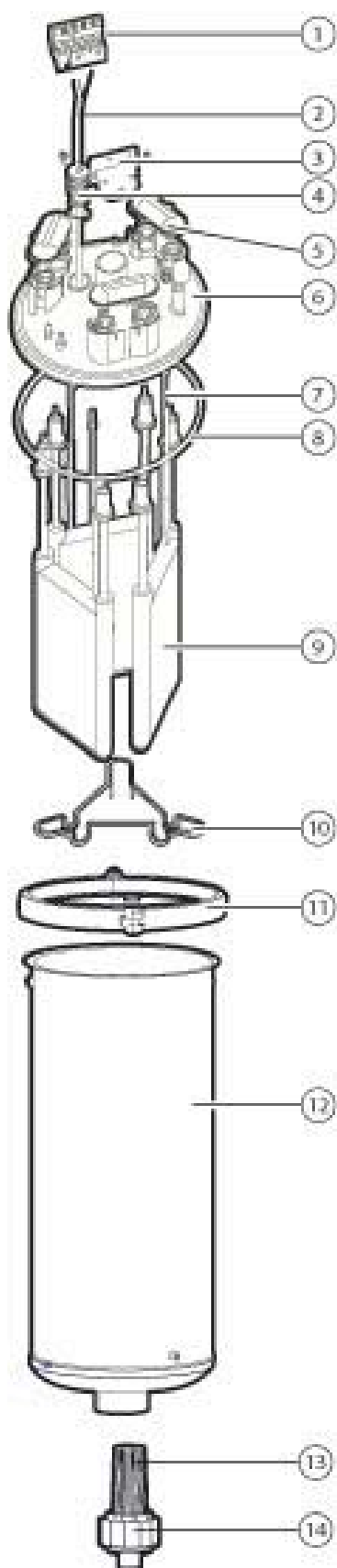


Fig. 17.a

n.	description	Spare Parts Code		
		UR006 – 1 ~ *	UR006 – 3 ~ **	UR010 – 3 ~ **
1	PTC probe wire terminals		URKTB00000	
2	NTC Probe		URKNTC0000	
3	Wire terminal bracket		URK0000022	
4	NTC well		URKNTCCAS1	
5	Power connection protection cover		URKCOPC00M	
6	Cylinder cover			
8	Cylinder gasket		URKG100000	
11	Cylinder cover locking clamp		URKBR00000	
7	PTC probe		URKPSCS000	
9	Heating elements:			
	with antiadherent film			
	208V	URKH00A347	URKH00A347	URKH00A346
	230V	URKH00A320	URKH00A320	URKH00A322
	400V		URKH00A320	URKH00A322
	460V		URKH00A344	URKH00A347
	575V		URKH00A341	URKH00A342
	without antiadherent film			
	208V	URKH00R347	URKH00R347	URKH00R346
	230V	URKH00R320	URKH00R320	URKH00R322
	400V		URKH00R320	URKH00R322
	460V		URKH00R344	URKH00R347
	575V		URKH00P341	URKH00R342
10	Heating element centring spring 13C453A048		----	
12	Cylinder		URKB100000	
13	Filter, ring nut and pipe union		UEKF000000	
-	Gasket kit		URKG00000M	

Tab. 17.a

n. description			Spare Parts Code	
			UR002	UR004
1	NTC probe		URKNTC0000	
2	NTC well		URKNTCCAS2	
3	PTC probe wire terminals		URKTB00000	
4	Terminal fastening bracket		URK0000022	
5	Power connection protection cover		URKCOPC00S	
6	Cylinder cover			
8	Cylinder gasket			
10	Cylinder cover locking clamp		URKG100000	
			URKBR00000	
7	PTC probe		URKPTCS000	
9	Heating elements:			
	with antiadherent film	208V	URKH00A348	URKH00A349
		230V	URKH00A348	URKH00A349
	without antiadherent film	208V	URKH00R348	URKH00P349
		230V	URKH00R348	URKH00P349
11	cylinder		URKB040000	
12	filter, ring nut and pipe union		UEKF000000	
13				
-	Gasket kit		URKG00000M	

Tab.le17.b

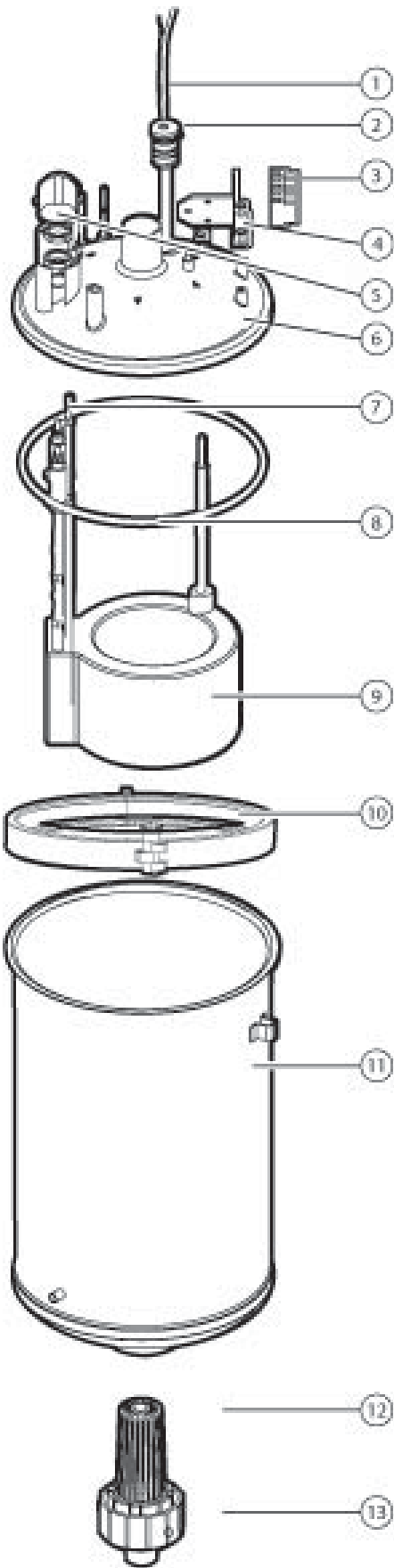


Fig. 17.b

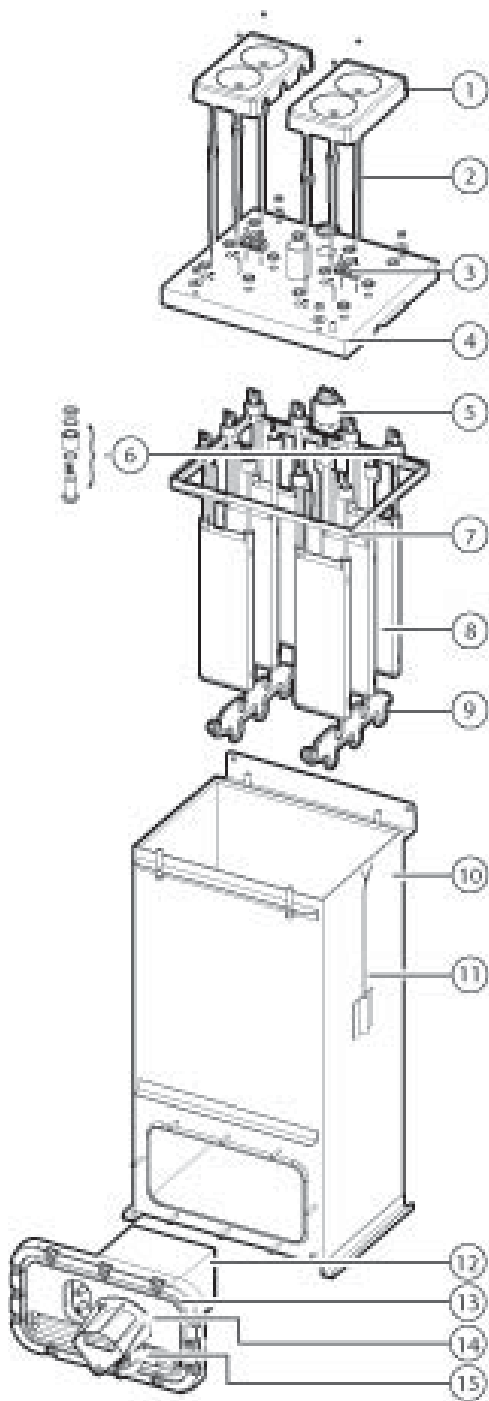


Fig. 17.c

Exploded of the cylinder 20-27-40-60 kg/h 44.1-59.5-88.1-132.3 lbs/h )

n.	description	Spare Parts Code			
		UR020	UR027	UR040	UR060
1	Heating element protection	----			
2	PTC probe	URKPTCL000			
3	PTC probe wire terminals	URKTB00000	URKTB00000	URKTB00000	URKTB00000
4	Cylinder cover	URKCOP4000	URKCOP4000	URKCOP4000	URKCOP6000
5	Anti-foaming system	URKFS00000			
6	Heating element assembly	---	--	--	--
7	Cylinder gasket	URKG400000	URKG400000	URKG400000	URKG600000
8	Heating element	6 x	6 x	6 x	9 x
	with antiadherent film	208V	URKH00A382	URKH00A383	
		230V	URKH00A381	URKH00A382	
		400V	URKH00A381	URKH00A382	URKH00A387
		460V	URKH00A386	URKH00A381	URKH00A390
		575V	URKH00A385	URKH00A380	URKH00A389
	without antiadherent film	208V	URKH00R382	URKH00R383	
		230V	URKH00R381	URKH00R382	
		400V	URKH00R381	URKH00R382	URKH00R387
		460V	URKH00R386	URKH00R381	URKH00R390
		575V	URKH00R385	URKH00R380	URKH00R389
9	Heating element centring spring	----			
10	Cylinder	URKB270000		URKB400000	URKB600000
11	NTC probe	URKNTC0000			
12	Use filter	URKF0000XL			
13	Use flange	URKFLAN000			
14	Pump fastening bracket	URKFLAN000			
15	Drain pump	KITPSR0000			
-	Gasket kit	URKG0000XL			URKG0000XL

Table17.c

## 17.a Maintenance of the other plumbing components

**IMPORTANT WARNINGS:** do not use detergents or solvents to clean the plastic components. To remove the deposits use a 20% acetic acid solution, then rinse thoroughly with water.

Water parts ur 2-10kg/h ( 4.4 - 22 lbs/h)

n.	description	Spare part codes	
		UR002 to UR004	UR006 to UR010
1	tank	UEKVASC000	
2	Supply pipe	URKT00000S	URKT00000M
3	Fill electrovalve	KITVC00006	KITVC0012
4	Level control:	URKSL00004	
4a	sensor cap		
4b	o-ring		
4c	sensor floating		
4d	sensor pipe		
4e	control board		
5	Drain electrovalve	URKDRAIN00	URKDRAIN00
6	A/D manifold (fill - drain)		
7	Drain pipe	URKT00000S	URKT00000M
8	Overflow pipe		

Table 17.d

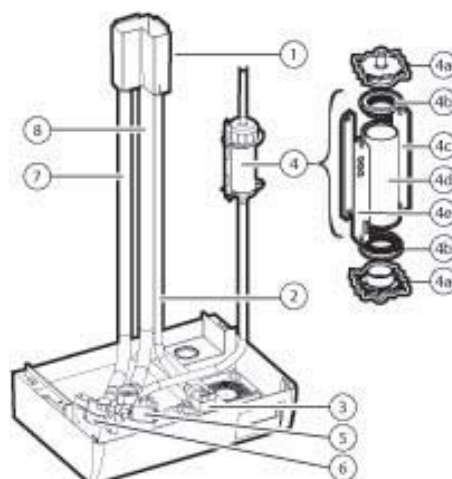


Fig. 17.d

Water parts ur 20-27-40-60 kg/h ( 44.1-59.5-88.1-132.3 lbs/h )

n.	description	Spare part codes			
		UR020	UR027	UR040	UR060
1	Overflow pipe	URKDC00000			
2	Drain column				
3	Supply pipe	URKT0000XL	URKT0000XL	URKT0000XL	URKT0000XL
4	Level control:	URKSL00004			
4a	Sensor cap				
4b	o-ring				
4c	sensor floating				
4d	sensor pipe				
4e	control board				
5	Drain pump	KITPSR0000			
6	Fill electrovalve	KITVC00040		KITVC00100	
7	Drain tank	--	--	--	--

Table 17.e

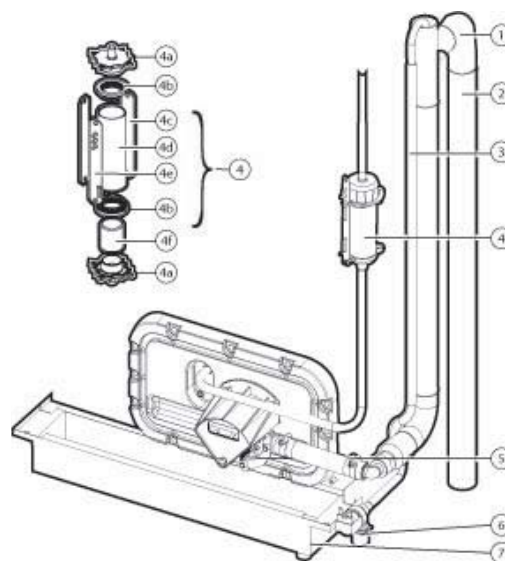


Fig. 17.e

### • Fill electrovalve (Fig. 17.d, part. no. 3 - Fig. 17.e, part. no. 6)

After having disconnected the cables and the pipe, remove the electrovalve and check the state of the inlet filter, cleaning it if necessary using water and a soft brush.

### • Supply and drain manifold (Fig. 17.d, part. no. 6)

Check that there are no solid residues at the cylinder coupling; remove any impurities.

Check that the O-ring is not damaged or cracked; replace it if necessary.

### • Drain electrovalve / drain pump (Fig. 17.d, part. no. 5 - Fig. 17.e, part. no.5)

Disconnect the power cables, remove the bobbin and remove the valve block after having unscrewed the two fastening screws from the manifold; remove any impurities and rinse; as regards the pump it is sufficient to screw the clamping screw and remove possible impurities;

### • Fill tank (Fig. 17.d, part. no. 1)

Check that there are no blockages or solid particles and that the conductivity measuring electrodes are clean, remove any impurities and rinse.

### • Supply, fill, overflow pipe (Fig. 17.a, part. no.2-8 - Fig. 17.e, part. no. 3-1)

Check that they are free and do not contain any impurities; remove any impurities and rinse.

### • Level control (Fig. 17.d, part. no.4 - Fig. 17.e, part. no. 4)

The level control must be released from the partition wall of the cabinet. Disconnect the connector from the terminals of the electronic board, take off the connection pipes. Release the spacers and the board, then take off the caps. Check that the o-rings are not damaged or cracked; replace them if necessary. Check the cleanliness and free sliding of the two float switches.

Clean all the components and reassemble and replace the device.



Carefully check that the connection pipes are properly fitted and that they are not blocked or choked at any point.



**IMPORTANT WARNING:** after having replaced or checked the plumbing components, check that the connections have been carried out correctly, with their corresponding seals. Re-start the machine and run through a number of fill and drain cycles (from 2 to 4), at the end of which, applying the safety procedure, check for any water leaks.

## 17.2 Replacing the components

### 17.2.1 Non-stick film

If requested as an option, the internal wall of the cylinder is lined with a non-stick film to avoid lime being deposited on the internal walls of the cylinder. To clean or replace the film, remove the cylinder following the procedure described in Maintenance of the cylinder-cylinder and then:

- slowly remove the film towards the mouth of the cylinder, without forcing it to avoid damage;
- open the film after having released the click-on couplings;
- clean the film with water and a plastic spatula if necessary; replace the film if damaged;
- wind the film around itself, reinserting the click-on couplings, and place it into the cylinder after the latter has been carefully cleaned and freed from deposits.

### 17.2.2 Elements

To replace the elements remove the cylinder following the procedure described in Maintenance of the cylinder-cylinder and loosen the fastening nuts from the threaded spigots of the elements. Before reassembling the elements, check the state of the gaskets and replace them if necessary.

### 17.2.3 PTC overtemperature sensor

The PTC sensors (one for each heating element) do not require regular maintenance; they should only be replaced if the safety thermostat is activated due to operation without water: in fact, the intervention of just one PTC will cause the control module to shut-down operation.

To replace the sensors, remove the cylinder following the procedure described in Maintenance of the cylinder-cylinder and then:

- disconnect the PTC sensor terminals (see Fig.: 7.p.a to 7.p.n);
- remove the electrical elements corresponding to the sensors being replaced;
- unscrew the PTC sensor (fig. 17.a, part. no. 7 or Fig. 17.b part. no. 7 or Fig. 17.c part. no. 2) using a spanner on the hexagonal spigot, accessible from the under side of the cover;
- reassemble a new PTC sensor, replacing the o-ring and screwing it tight; reconnect the terminals;
- reposition the electric heating elements, making sure the PTC sensor enters into the corresponding sheath in the aluminium casting.

### 17.2.4 NTC temperature sensor (version with type H or T control module only)

As for the PTC sensors, the NTC sensor controlling the water temperature does not require regular maintenance.

To replace this sensor, remove the cylinder following the procedure described in Maintenance of the cylinder-cylinder and then:

- disconnect the terminals of the NTC sensor (see Fig.: 7.p.a to 7.p.n);
- remove the sensor from the well housed in the measuring sheath (fig. 17.a part. no. 2, or Fig. 17.b part. no. 1, or Fig. 17.d part. no. 11);
- reposition and connect the new sensor in the place of the old one.

### 17.2.5 Fuses (uxiliary circuit)

These measure 10.3 x 38mm and are housed in the fuse cartridge; to check the state of the fuses, check their continuity using a tester.

Use the types of fuses indicated in table 17.e.

	models								
	UR002	UR004	UR006 - 1~*	UR006 -3~**	UR010	UR020	UR027	UR040	UR060
fuses 1 and 2 transformer power supply	All fast blow and capacity 1 A, GL, 10,3x38 contained in fuse carrier on Omega rail								
fuses 3 pump protection (on humidifiers from 20 to 60kg/h) (44.1 to 132.3 lbs/h)							1 A GL , 10,3x38 FAST		
Fuse 4 transformer secondary							2,5 A,T 5x20 in pottery		

Table 17.f

\*: single-phase \*\*: three-phase

### 17.2.6 Load protection fuses (humidifiers UR027 at 208-230 V, UR060 at 460 V)

Dimension of the fuses 27x60 mm rapid, housed in fuse carrier bases that can be selected. Check their continuity using a tester.

	UR027	UR060
fuses F5, F6, F7	40 A, GG	35 A, GG
fuses F8, F9, F10	40 A, GG	50 A, GG

Table 17.g

### 17.2.7 Solid state relays (version with type H or T control module only)

The solid-state relays (one in the single-phase unit, two in the three-phase unit) can malfunction in one of two ways: by short-circuit or burn-out. The respective consequences for the supply of power are: continuous conduction or permanent opening.

In the event of malfunctioning, check the conduction of the relay using a tester.

For the replacement of the solid-state relay:

- turn the humidifier off;
- open the disconnection switch in the power line (safety procedure);
- disconnect the power and auxiliary cables from the solid-state relay terminal block;
- remove the relay from the electrical panel by using a screwdriver to lower the fastening lever to the omega guide;
- replace the new relay on the omega guide and reconnect the wires as before.

### 17.2.8 Cooling fan and circuit breaker (version with type H or T control module only)

The SSR relays are cooled by a fan placed in the upper part, on the right side of the machine for the 20-60kg/h (44-132.2lbr/h) models, or placed on the base of the humidifier for the models up to 10kg/h (22lbr/h).

With insufficient ventilation the temperature of the electrical panel may rise excessively until, reaching 65°C, power to the solid-state relays is cut by a special Klaxon (heat sensor, used in this application as circuit breaker - hereafter: circuit breaker), with manual reset (indicated by S2 in the wiring diagram) and without an activation signal. In this case, check:

- Whether the thermoprotective placed in the din rail near to the SSR relays has been working, or placed in front of the baffle pressing the reset button (see Fig. 17.f);
- that the fan power board, fitted in front of the baffle, is powered (input terminals: 24 Vac) and in turn powers the fan (output terminals: 24 Vdc), (only for models up to).

If the fan is faulty:

- in the models up to 10 Kg/h (22 lbs/h):
  - remove the baffle, after having unscrewed the two side nuts for fastening to the partition of the appliance;

In case of malfunction, the thermoprotective can be replaced unscrewing the fastening screws;

- in the 20-27-40-60 Kg/h ( 44.1-59.5-88.1-132.3 lbs/h ) models:
  - unscrew the 4 fastening screws placed on the right side of the structural work and extract the fan from the inside of the panel.

In case of malfunction, the thermoprotective can be replaced removing the polycarbonate transparent protection of the solid state relays and unscrewing the fastening screws.

Key:

1	Klaxon (thermoprotective - where fitted)
2	solid state relay (SSR) (where fitted)
3	fan (where fitted)
4	heatsink

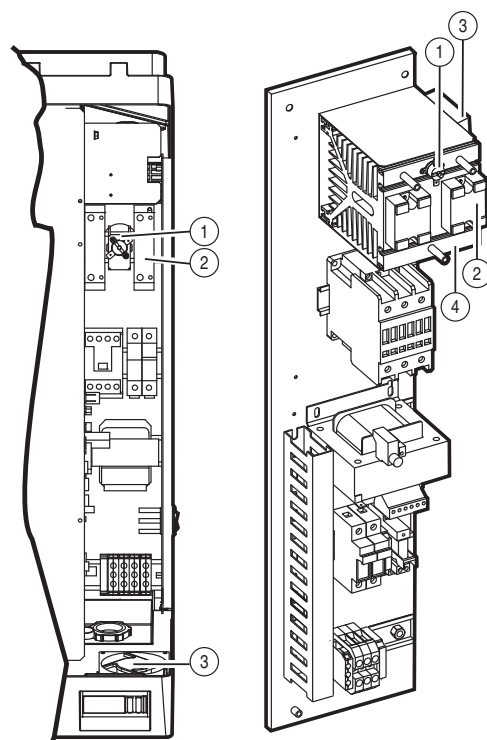


Fig. 17.f

## 17.3 Spare parts

Models	UR002	UR004	UR006 - 1 ~*	UR006 - 3 ~**	UR010	UR020	UR027	UR040	UR060
<b>plumbing</b>									
humidifier gasket kit	URKG00000M	URKG00000M	URKG00000M	URKG00000M	URKG00000M	URKG0000XL	URKG0000XL	URKG0000XL	URKG0000XL
Cylinder gasket kit	URKG100000	URKG100000	URKG100000	URKG100000	URKG100000	URKG400000	URKG400000	URKG400000	URKG600000
cylinder cover kit	URKCOPC00S	URKCOPC00S	URKCOPC00M	URKCOPC00M	URKCOPC00M	URKCOP4000	URKCOP4000	URKCOP4000	URKCOP6000
boiler cover locking bracket	URKBR00000	URKBR00000	URKBR00000	URKBR00000	URKBR00000				
cylinder filter kit	UEKF000000	UEKF000000	UEKF000000	UEKF000000	UEKF000000	URKF0000XL	URKF0000XL	URKF0000XL	URKF0000XL
						URKFLAN000	URKFLAN000	URKFLAN000	URKFLAN000
<b>Teflon-coated heating elements</b>									
208 V	URKH00A348	URKH00A349	URKH00A347	URKH00A347	URKH00A346	URKH00A382	URKH00A383		
230 V	URKH00A348	URKH00A349	URKH00A320	URKH00A320	URKH00A322	URKH00A381	URKH00A382		
400 V				URKH00A320	URKH00A322	URKH00A381	URKH00A382	URKH00A387	URKH00A387
460 V				URKH00A344	URKH00A347	URKH00A386	URKH00A381	URKH00A390	URKH00A390
575 V				URKH00A341	URKH00A342	URKH00A385	URKH00A380	URKH00A389	URKH00A389
<b>non-Teflon heating elements</b>									
208 V	URKH00R348	URKH00R349	URKH00R347	URKH00R347	URKH00R346	URKH00R382	URKH00R383		
230 V	URKH00R348	URKH00R349	URKH00R320	URKH00R320	URKH00R322	URKH00R381	URKH00R382		
400 V				URKH00R320	URKH00R322	URKH00R381	URKH00R382	URKH00R387	URKH00R387
460 V				URKH00R344	URKH00R347	URKH00R386	URKH00R381	URKH00R390	URKH00R390
575 V				URKH00R341	URKH00R342	URKH00R385	URKH00R380	URKH00R389	URKH00R389
cylinder fastening strap	URKBLOCK00	URKBLOCK00	URKBLOCK00	URKBLOCK00	URKBLOCK00	---	---	---	---
steel cylinder	URKB040000	URKB040000	URKB100000	URKB100000	URKB100000	URKB270000	URKB270000	URKB400000	URKB600000
fill tank	UEKVASC000	UEKVASC000	UEKVASC000	UEKVASC000	UEKVASC000	---	---	---	---
drain electrovalve kit	URKDRAIN00	URKDRAIN00	URKDRAIN00	URKDRAIN00	URKDRAIN00	---	---	---	---
drain pump kit						KITPSR0000	KITPSR0000	KITPSR0000	KITPSR0000
drain pipe kit						URKT0000XL	URKT0000XL	URKT0000XL	URKT0000XL
fill valve	KITVC00006	KITVC00006	KITVC00012	KITVC00012	KITVC00012	KITVC00040	KITVC00040	KITVC00040	KITVC00100
internal pipe kit	URKT00000S	URKT00000S	URKT00000M	URKT00000M	URKT00000M	URKT0000XL	URKT0000XL	URKT0000XL	URKT0000XL
level control with sensor	URKSL00004	URKSL00004	URKSL00004	URKSL00004	URKSL00004	URKSL00004	URKSL00004	URKSL00004	URKSL00004
non-stick film	URKBAG0400	URKBAG0400	URKBAG1000	URKBAG1000	URKBAG1000	---	---	---	---
external terminal covering	URKTI04000	URKTI04000	URKTI10000	URKTI10000	URKTI10000	URKTI27000	URKTI27000	URKTI40000	URKTI60000
<b>electrical parts</b>									
<b>contactor</b>									
voltage	208 V	URKCONT100	URKCONT100	URKCONT100	URKCONT100	URKCONT100	URKCONT400	URKCONT400	
230 V							URKCONT300		
400 V				URKCONT100	URKCONT100	URKCONT200	URKCONT200	URKCONT200	URKCONT300
460 V				URKCONT100	URKCONT100	URKCONT200	URKCONT200	URKCONT200	URKCONT300
575 V				URKCONT100	URKCONT100	URKCONT200	URKCONT200	URKCONT200	URKCONT300
Auxiliary contact						URKCONT500	URKCONT500	URKCONT500	URKCONT500
<b>power supply transformer</b>									
voltage	230 - 400 V	URKTR10000	URKTR10000	URKTR10000	URKTR10000	URKTR10000	URKTR40000	URKTR40000	URKTR40000
208 - 208 - 460 - 575 V	URKTR20000	URKTR20000	URKTR20000	URKTR20000	URKTR20000	URKTR30000	URKTR30000	URKTR30000	URKTR30000
<b>fuse carrier</b>									
voltage	460 V	URKFH10000	URKFH10000	URKFH10000	URKFH10000	URKFH20000	URKFH20000	URKFH20000	URKFH20000
208-230 V							URKFH30000		URKFH30000
<b>fuses</b>									
F1, F2	208-230 V	URKFUSE100	URKFUSE100	URKFUSE100	URKFUSE100	URKFUSE100	URKFUSE200	URKFUSE200	
400V				URKFUSE300	URKFUSE300	URKFUSE300	URKFUSE300	URKFUSE300	URKFUSE300
460-575 V				URKFUSE100	URKFUSE100	URKFUSE100	URKFUSE100	URKFUSE100	URKFUSE100
F3	400V					URKFUSE300	URKFUSE300	URKFUSE300	URKFUSE300
208-230-460-575 V						URKFUSE400	URKFUSE400	URKFUSE400	URKFUSE400
F4						URKFUSE500	URKFUSE500	URKFUSE500	URKFUSE500
F5, F6, F7, F8, F9, F10	from 40 A (208-230V)						URKFUSE700		
F5, F6, F7	from 35 A (460V )								URKFUSE600
F8, F9, F10	from 50 A (460V)								URKFUSE800
fan	URKFANS000	URKFANS000	URKFANS000	URKFANS000	URKFANS000	URKFANL000	URKFANL000	URKFANL000	URKFANL000
Motor protector	THP00A0000	THP00A0000	THP00A0000	THP00A0000	THP00A0000	THP00A0000	THP00A0000	THP00A0000	THP00A0000
						URKKL00000	URKKL00000	URKKL00000	URKKL00000
socket for pre-heater probe	URKNTCCAS2	URKNTCCAS2	URKNTCCAS1	URKNTCCAS1	URKNTCCAS1				
<b>electronic parts</b>									
version C control module			URCxvppri (for further information see the CAREL instruction sheet code +050003700)						
version H control module			URHxvppri (for further information see the CAREL instruction sheet code +050003700)						
version T control module			URTxvppri (for further information see the CAREL instruction sheet code +050003700)						
main control board	URI0000000	URI000000i	URI000000i	URI000000i	URI000000i	URI000000i	URI000000i	URI000000i	URI000000i
flat connection cable	59C460A003	59C460A003	59C460A003	59C460A003	59C460A003	59C460A003	59C460A003	59C460A003	59C460A003
fan and SSR motorprotector	URKKL10000	URKKL10000	URKKL10000	URKKL10000	URKKL10000				
boiler motorprotector						URKKL00000	URKKL00000	URKKL00000	URKKL00000
fan circuit breaker	6132702AXX	6132702AXX	6132702AXX	6132702AXX	6132702AXX	6132702AXX	6132702AXX	6132702AXX	6132702AXX
fan control board	URKCFAN000	URKCFAN000	URKCFAN000	URKCFAN000	URKCFAN000				
<b>solid state relay</b>									
208 V	URKSSR1000	URKSSR1000	URKSSR2000	URKSSR1000	URKSSR2000	URKSSR3000	URKSSR3000		
230 V	URKSSR1000	URKSSR1000	URKSSR2000	URKSSR1000	URKSSR1000	URKSSR3000	URKSSR3000		
400 V	URKSSR1000	URKSSR1000		URKSSR1000	URKSSR1000	URKSSR3000	URKSSR3000	URKSSR3000	URKSSR3000
460 V	URKSSR1000	URKSSR1000		URKSSR1000	URKSSR1000	URKSSR3000	URKSSR3000	URKSSR3000	URKSSR3000
575 V				URKSSR1000	URKSSR1000	URKSSR3000	URKSSR3000	URKSSR3000	URKSSR3000
PTC probe (res. without antiadherent film)	URKPTCS000	URKPTCS000	URKPTCS000	URKPTCS000	URKPTCS000	URKPTCL000	URKPTCL000	URKPTCL000	URKPTCL000
NTC probe (res. with antiadherent film)	URKNTC0000	URKNTC0000	URKNTC0000	URKNTC0000	URKNTC0000	URKNTC0000	URKNTC0000	URKNTC0000	URKNTC0000

Table 17.h

\*: single-phase

\*\*: three-phase

## 17.4 Disposal of the parts of the humidifier

The humidifier is made up of metallic and plastic parts, refer to Figs. 2.a e 14.b. All these parts must be disposed of according to the local standards regarding product waste disposal.